1. **DO Number and Title:** **Flight Crew Operations Web / Computer-Based Training Development**

2. **Contacts, Program, and WBS**

DO Contact Information:

DO Manager: Scott Reagan **Phone:** 713-303-3546

DO Mgr. Alternate: Bob Hines **Phone:** 850-240-5780

Program: ☐ ISS ☐ MPCV ☐ Commercial ☐ AES ☐ OCT ☒ Other

Task Classification (reference NPD 8730.5): ☐ Critical ☐ Complex

Task involves:

☐ **Flight Hardware** ☐ **Flight Software** ☐ **Ground Support Equipment**

☐ **Quality Assurance Oversight** ☒ **On-site Development**

Capability Maturity Model Integration (CMMI) Required: ☐ **Yes,** Choose level ☐ **No**

WBS: ☐ **2.0 EVA** ☐ **3.0 FCE** ☐ **4.0 Robotics** ☐ **5.0 ECLSS** ☐ **6.0 ATCS**

☐ **7.0 CheCS** ☐ **8.0 Avionics** ☐ **9.0 GFE (General)** ☐ **10.0 Payloads**

WBS reporting shall be done in accordance with applicable WBS reporting categories, as shown above and in the contract within Section C, Table 1.

3. **Technical**

   3.1 Background/Problem Description

   Flight Crew Operations Division (FCOD) currently provides instructor-led Instrument Refresher Courses (IRC) on a regular basis. Each course requires pilot instructor availability and resource commitments affecting task implementation and completion. Changing commitments in other areas have significantly reduced the availability of pilot instructors available to teach these repetitive but required courses. In order to decrease pilot instructor commitment, these courses will be transferred to Computer/Web Based Trainers (C/WBT) to allow flexibility and availability of course content for trainee completion.

3.2 Objectives

Development and delivery of six C/WBT courses. These courses will be developed from existing, instructor led, Flight Crew Operations Training Courses.

3.3 Prior Work

Instructor led courses have been developed to different degrees in each of the six areas. The first course (IRC) was developed in-house and is conducted on a regular basis. The five additional courses (Aircraft Systems Courses) were developed mostly in-house and vary in degree of completeness. Current courses exist primarily in the format of Microsoft PowerPoint slideshows.

3.4 Requirements (Statement of Work)

Base Delivery Order Effort:

1. Perform a training analysis to include interviews with course developers, subject matter experts and instructors to understand training requirements, collect training references and manuals, review video recordings of instructor-led courses, select a training delivery tool and collect other information about ultimate training goals as necessary.

2. Develop audio scripting for the existing course slides and for slides developed as part of this effort based on the results of needs analysis.

3. Develop new slides in conjunction with FCOD instructors to improve training points as necessary.

4. Utilize or integrate with NASA-approved software to build the training package into a coherent C/WBT. In addition to having an overall professional theme and operation, this should include integration with existing record-keeping software used by FCOD.

5. Set periodic reviews to allow for FCOD evaluation, modification, and comments for incorporation into the end-product.

6. Deliver C/WBT to FCOD ready to execute on NASA servers.

Options:

For the following options, the contractor shall perform the following for the system specified under the specific option:

- Perform training needs analysis including interviews with Project Pilots, other instructors, and subject matter experts to understand training requirements, collect training references/manuals, review video recordings of instructor-led courses, select a delivery training tool (if different than base effort – supply justification), and collect other information as necessary to achieve end goals for this training.

- Develop audio scripting for the courseware and slides developed as part of this effort based on results of needs analysis.

- Develop new/updated courses in conjunction with appropriate FCOD instructors as necessary to meet training objectives.

- Utilize or integrate with NASA-approved software to build the training package into a coherent C/WBT. In addition to an overall professional theme and operation, this should include integration with existing record-keeping software used by FCOD.

- Set periodic reviews to allow for FCOD evaluation, modification, and comments for incorporation.

- Deliver C/WBT to Flight Crew Operations Directorate ready to execute on NASA servers.

These options can be exercised up to the last day of the period of performance.

Option 1: Instrument Refresher

- Period of performance: 12 weeks post award

Option 2: Gulfstream III (G-3)

- Period of performance: 8 weeks post award

Option 3: WB-57

- Period of performance: 16 weeks post award

Option 4: Super Guppy

- Period of performance: 16 weeks post award

Option 5: C-9

- Period of performance: 16 weeks post award

3.5 Government Furnished Property

The items listed below as "Government Furnished Property" are current training materials primarily in the form of a series of Microsoft PowerPoint presentations. These materials will be provided in the most up-to-date version available. Additional information may be provided by Subject Matter Experts (SME) within FCOD.

Item	Basic/Option	Quantity	Delivery Date

			(weeks post award)
T-38 Systems Slides	Basic	1	8
Instrument Refresher Course Slides	Option 1	1	Exercise date
Gulfstream III (G-3) Systems Slides	Option 2	1	Exercise date
WB-57 Systems Slides	Option 3	1	Exercise date
Super Guppy Systems Slides	Option 4	1	Exercise date
C-9 Systems Slides	Option 5	1	Exercise date

3.6   Deliverables/Products

The table below identifies the deliverables/products and the associated description, quantity (qty), due date, and the respective Flight Class (I, II, III, IV).

Product	Description	Qty	Due Date (Option: *post-award*)	Option
Software				
Training Unit	T-38 Aircraft Systems Refresher Course C/WBT	1	7/1/2013	Basic
Training Unit	Instrument Refresher Course C/WBT.	1	*12 weeks*	Opt 1
Training Unit	G-3 Aircraft Systems Refresher Course C/WBT	1	*8 weeks*	Opt 2
Training Unit	WB-57 Aircraft Systems Refresher Course C/WBT	1	*16 weeks*	Opt 3
Training Unit	Super Guppy Aircraft Systems Refresher Course C/WBT	1	*16 weeks*	Opt 4
Training Unit	C-9 Aircraft Systems Refresher Course C/WBT	1	*16 weeks*	Opt 5
Other	Click here to enter text.	Click here to enter text.	Click here to enter a date.	
Other Products				

Product	Description	Qty	Due Date (Option: *post-award*)	Option
Preliminary Design Review (PDR)	Review initial design (30% complete) with Subject Matter Experts and/or Project Pilots	1 ea (for basic and options)	N/A	All
Critical Design Review (CDR)	Review near-complete (60%) design with Subject Matter Experts, Project Pilots and/or management.	1 ea (for basic and options)	N/A	All

3.7   *Data Requirements Description (DRD)*

The table below summarizes the reporting requirements (via DRD) for this DO. The Non-Technical (NT) DRDs such as Status reports, Wage/Salary Data, 533 submittals, IT plans and reports, export control, and patent rights DRDs have been excluded from this template since they are at the contract level.

For contract details refer to http://procurement.jsc.nasa.gov/crave2/default.asp

Note the following:
1. Grey scaled rows need no additional/required fill-ins.
2. On all other rows, if necessary, check the box if required by double clicking box and selecting "**Checked"**.
3. Fill in additional requirements/deliverables in the last column.
4. Data Types: WA=Written Approval; MS=Mandatory Submittal; UR=Submitted Upon Request

DRD #	DATA TYPE	DRD TITLE	DUE	FREQUENCY	REQUIRED FOR DO?	COMMENTS
			REQUIREMENTS			
CRAVE-RQ-01	WA	Project Schedule	With DO Proposal	Monthly, or as Directed by DO	☐Y	Click here to enter text.
CRAVE-RQ-02	WA	Projects Requirements & Verification Document (PRVD)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-RQ-03	WA	Interface Control Document (ICD)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-RQ-04	WA	End Item Specification (EIS)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-RQ-05	WA	Engineering Drawings	As Directed by DO	As Required	☐Y	Click here to enter text.

DRD #	DATA TYPE	DRD TITLE	DUE	FREQUENCY	REQUIRED FOR DO?	COMMENTS
CRAVE-RQ-06	WA	Verification and Validation (V&V) Document	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-RQ-07	WA	Qualification Test Procedure (QTP)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-RQ-08	WA	Acceptance Test Procedure (ATP)	As Directed by DO	Once with Revisions	☐Y	Click here to enter text.

DRD #	DATA TYPE	DRD TITLE	DUE	FREQUENCY	CHECK BOX IF REQUIRED	COMMENTS
SOFTWARE SPECIFIC						
CRAVE-SW-01	WA	Software Requirements Specification (SRS)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SW-02	WA	Software Development Plan (SDP)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SW-03	WA	Software Design Document (SDD)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SW-04	WA	Software Quality Assurance Plan and Report	As Directed by DO	Once with Revisions	☐Y	Click here to enter text.
CRAVE-SW-05	MS	Software Test Description	At CDR or as Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SW-06	MS	Software Test Plan	At CDR or as Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SW-07	MS	Version Description Document (Software and/or Firmware)	At SAR or as Directed by DO	As Required	☐Y	Click here to enter text.
DATA PACKS						
CRAVE-DP-01	MS	Systems Requirements Review (SRR) Data Package	As Directed by DO	Once with Revisions	☐Y	Click here to enter text.
CRAVE-DP-02	MS	Preliminary Design Review (PDR) Data Package	As Directed by DO	Once with Revisions	☐Y	Click here to enter text.
CRAVE-DP-03	MS	Critical Design Review (CDR) Data Package	As Directed by DO	Once with Revisions	☐Y	Click here to enter text.
CRAVE-DP-04	MS	Acceptance Data Package (ADP)	As Directed by DO	Once with Revisions	☐Y	Click here to enter text.
CRAVE-DP-05	MS	Certification Data Package (CDP)	As Directed by DO	Once with Revisions	☐Y	Click here to enter text.

DRD #	DATA TYPE	DRD TITLE	DUE	FREQUENCY	CHECK BOX IF REQUIRED	COMMENTS
CRAVE-DP-06	WA	Certification and Acceptance Requirements Document (CARD)	As Directed by DO	Once with Revisions	☐Y	Click here to enter text.
CRAVE-DP-07	WA	User's Guide	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-DP-08	MS	Design Analysis Report	As Directed by DO	As Required	☐Y	Click here to enter text.
SAFETY, RELIABILITY, AND QUALITY ASSURANCE						
CRAVE-SQ-01	MS	Space Shuttle Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SQ-02	WA	Space Shuttle Safety Analysis Report (SAR) & Hazard Report (HR)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SQ-03	WA	Space Station Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL)	As Directed by DO	As Required	☐Y	Click here to enter text.

DRD #	DATA TYPE	DRD TITLE	DUE	FREQUENCY	REQUIRED FOR DO?	COMMENTS
CRAVE-SQ-04	WA	Space Station Hazard Reports (HRs)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SQ-05	WA	Constellation Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SQ-06	WA	Constellation Hazard Reports (HRs)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SQ-07	WA	Risk Assessment Executive Summary Report (RAESR)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SQ-08	WA	Problem Reporting and Corrective Action (PRACA)	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SQ-09	UR	Nonconformance Record	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SQ-10	MS	Government Industry Data Exchange Program (GIDEP) and NASA Advisory Problem Data	Upon Problem Discovery	Once with Each Occurrence	☐Y	Click here to enter text.
CRAVE-SQ-11	WA	Electrical, Electronic, and Electromechanical (EEE) Parts Lists and Analysis Report	As Directed by DO	As Required	☐Y	Click here to enter text.
CRAVE-SQ-12	WA	Electrical, Electronic, and Electromechanical (EEE) Parts Control Plan	60 Days After Award of First DO Requiring Electrical Design	Once with Revisions	Y (If Applicable)	Only Required to be Submitted Once During Contract Performance Period

DRD #	DATA TYPE	DRD TITLE	DUE	FREQUENCY	CHECK BOX IF REQUIRED	COMMENTS
CRAVE-SQ-13	MS	System Safety Program Plan	Submitted with First DO Proposal Requiring Integrated System Safety	Once with Revisions	Y (If Applicable)	Only Required to be Submitted Once During Contract Performance Period
CRAVE-SQ-14	WA	Quality Plan	With Contract Proposal	One Time	Y	Section-J of Contract
CRAVE-SQ-15	UR	Reliability and Maintainability (R&M) Plan	With Contract Proposal	One Time	Y	Section-J of Contract
CRAVE-SQ-16	WA	Configuration Management (CM) Plan	With Contract Proposal	One Time	Y	Section-J of Contract
CRAVE-SQ-17	WA	Safety and Health Plan	With Contract Proposal	One Time	Y	Contractual Obligation

4. Applicable and Reference Documents

Document #	Title of Document
Applicable Documents	
Instrument Refresher Course PowerPoint Presentation	IRC Course
Aircraft Systems Power PowerPoint Presentations	Various Aircraft Systems (Available from the Aircraft Specific Project Pilot/Subject Matter Expert)
Reference Documents	
T-38(N)-1B3	T-38 Operations Manual
WB-57(N)-1	WB-57 Operations Manual
NAVAIR 01-C9BAAA-1	NATOPS Flight Manual NAVY Model C-9 Aircraft
SGT Flight Training Manual	Super Guppy Operations Manual
Flight Safety International Revision 0	G-1159 Pilot Training Manual Volume 2 Aircraft Systems
AFM 11-217 Volume 3	Supplemental Flight Information
AFM 11-217 Volume 2	Visual Flight Procedures
AFM 11-217 Volume 1	Instrument Flight Procedures
AFH 11-203 Volume 1	Weather For Aircrews
AFH 11-203 Volume 2	Weather for Aircrews

Document #	Title of Document
AFI 11-202 Volume 3	General Flight Rules
AIM	Airman's Information Manual